CENTRAL BAYFRONT
ACCESS INVESTIGATION

A Preliminary Examination of
Alternative Ramp and Interchange
Configurations in the Gardiner/Lakeshore
Corridor (Spadina Avenue to Jarvis Street)

Prepared For: City of Toronto
Planning Department

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TABLE OF CONTENTS

		Page
1.	**INTRODUCTION**	1
2.	**OVERVIEW OF OPTIONS**	3
2.1	The Spadina Interchange Area	3
2.2	The York Interchange Area	4
2.3	The Yonge Interchange Area	6
2.4	The Jarvis Interchange Area	8

APPENDIX

Option Concept Plans (Scale: in = 200 Ft. Approx)

- **Spadina Interchange**
  - Alternative 1C 3
  - Alternative 1D 3
- **York Interchange**
  - Alternative 2B 4
  - Alternative 2C (includes Alternative 3A) 5
- **Yonge Interchange**
  - Alternative 3A 6
  - Alternative 3B 6
  - Alternative 3C 7
  - Alternative 3D 7
- **Jarvis Interchange**
  - Alternative 4A 8
  - Alternative 4B 8

1. INTRODUCTION

In October of 1982, **Barton-Aschman Associates Limited** was retained by the **City of Toronto Planning Department** to investigate alternative access concepts for the Central Bayfront Planning Area within the City of Toronto. Due to the significant "barrier" effect of the Gardiner Expressway/Lakeshore Boulevard corridor -- from a physical and traffic operations perspective -- the focus of the work centered on examination of alternative feasible configurations for ramps, intersections and interchanges connecting this corridor with key north/south roads.

The Central Bayfront area is physically bounded on the east and west by Yonge and York Streets (approximately). It was not considered practical to strictly limit the scope of the investigations to this immediate vicinity, however, since access functions from and to the Gardiner/Lakeshore corridor, for both Waterfront lands and the entire downtown, are handled by a complex and interdependent system of road connections. For the purposes of this report, therefore, the study area extends from Spadina Avenue to Jarvis Street (inclusive).

Specific tasks undertaken included the **generation of alternative concept plans** and the conduct of a **preliminary evaluation** with respect to physical/functional feasibility and level of accessibility afforded to adjacent lands. As a result of this preliminary "screening", several options were discarded and others were modified. The basic framework of assumptions within which the appended concept plans have been prepared is as follows:

- Options can physically and functionally fit within constraints imposed by the Gardiner/Lakeshore coridor.

- In general, traffic capacity into the downtown area should be **at least maintained** at existing levels with additional access capacity/opportunities afforded for Waterfront lands (in particular, Central Bayfront lands) and Railway lands.

- Generalized operational strengths and weaknesses of the options are identified.

- **Detailed traffic capacity calculations and related operational analyses of options have not been carried out.**

The resulting package of alternatives illustrates the range of options considered and concepts which warrant further detailed consideration. An overview of the strengths and weakness of each alternative is presented below organized according to physical location: (1) the Spadina interchange area, (2) the York/Bay (and peripherally, Yonge) exit ramps from the Gardiner eastbound, (3) the Yonge Street interchange area (specifically including the "loop" ramp onto the Gardiner eastbound), and (4) the Jarvis interchange area. Although the presentation of options by necessity considers each interchange/intersection area separately, one of the next steps in the development process must certainly be the amalgamation and transportation evaluation of concepts on a system-wide basis.

2. OVERVIEW OF OPTIONS

2.1 The Spadina Interchange Area

Alternative 1C:

Realign Lakeshore WB North and
Connect to Spadina At-Grade (Signalized)

Strengths

- Improved accessibility for Waterfront lands from and to the west on the Gardiner
- Improved accessibility for Railway Lands and the Core area to the west on the Gardiner
- Improved connections between Lakeshore and Spadina
- Efficient use of pavement surface
- Relatively inexpensive

Weaknesses

- Requires relocation of High Line
- May require widening of Gardiner WB
- Weave problem on Lakeshore WB if Lakeshore WB to Spadina SB left turn permitted
- Possible operational and storage problems between Lakeshore/Spadina signalized intersections
- Reduced Lakeshore EB capacity
- Consumes and sterilizes a considerable amount of land

Conclusions

- Further design and operational analyses warranted
- Rigorous testing of operation of two signals on Spadina required

Alternative 1D:

Provide Lakeshore WB to Gardiner WB Ramp Connection
(West of Spadina) and Relocate Gardiner WB
OFF Ramp to Lakeshore

Strengths

- Improved accessibility for Waterfront lands from and to the west on the Gardiner (indirect access onto Gardiner WB via Lakeshore)
- Improved accessibility for Railway lands and the Core area to the west on the Gardiner
- Eliminates York ON-Spadina OFF weave on the Gardiner WB
- Relatively simple construction staging
- Uses little additional land

Weaknesses

- May require relocation of High Line
- High cost -- 4 new ramps (2 are minor) plus probable widening of Gardiner WB
- Weaving section on Lakeshore EB (east of Spadina)
- No access improvement from the east to Waterfront lands

Conclusions

- Further design work and operational analyses warranted
- Individual elements may be pursued

2.2 The York Interchange Area

Alternative 2B:

Sever Lower York Through Functions and
Provide Jug-Handle Ramp Configuration

(Note: Option as indicated removes Gardiner EB OFF ramp to Yonge/Lakeshore, however, ramp could be retained if desired)

Strengths

- Rationalizes functions of York -- as primary Gardiner connector -- and Simcoe -- as primary Lakeshore, and potentially indirect Gardiner connector (when combined with Alternative 1C or 1D)
- Simplified York Street operation
- Increased accessibility to Waterfront lands from Gardiner EB
- Frees up some land by virtue of removing York/Bay loop ramp

Weaknesses

- Severing of through functions of York (Note: Potential for NB only transit connection still exists)
- Moderate cost -- two new or modified ramps
- Does not functionally "match" latest plans for John and Simcoe Streets through the Railway lands

Conclusions

- Recommended for further consideration

Alternative 2C:

Replace York/Gardiner Connection at Simcoe (City Plan) and
Provide Indirect Access to Bay Street (and possibly Yonge)

(Note: Option is ideally "paired" with Alternative 3A since the heavy Gardiner EB to Yonge NB movement would then not have to use the indirect routing via Queens Quay)

Strengths

- Increased accessibility from Gardiner for Railway and Waterfront lands
- Releases existing York/Bay loop ramp lands for redevelopment
- Flexibility of alternate Gardiner/Lakeshore to Simcoe/York connections
- Removal of Gardiner EB OFF ramp to Yonge/Lakeshore

Weaknesses

- Indirect access and longer travel route to Bay/Yonge (or, in City Plan, heavy weave on Lakeshore EB east of York Street)
- Simcoe SB through functions into Waterfront lands severed
- Limited exiting capacity from Waterfront lands via Simcoe Street during the morning peak period
- Additional connections between Simcoe and University/York north of Gardiner/Lakeshore corridor required

Conclusions

- This or City Plan warrants further design consideration
- Further operational investigation of new Simcoe -- York/University connections (north of Gardiner/Lakeshore corridor) required

2.3. The Yonge Interchange Area

Alternative 3A:

Provide Loop Ramp for Gardiner EB Exit to Yonge Street with Lakeshore EB Realigned Southerly

Strengths

- Direct, high-capacity connections from Gardiner EB to Yonge Street (north and south)
- Yonge through functions well served
- Improved accessibility to Waterfront lands via Lakeshore Boulevard
- Yonge exit ramp shortened considerably

Weaknesses

- Significant impact on Toronto Star parking lot
- Creates new ramp

Conclusions

- Recommend further consideration
- Operational feasibility of two signals on Yonge Street needs further investigation

Alternative 3B:

Rationalize and Signalize Lakeshore EB/Yonge Intersection

Strengths

- Simple and low cost
- Yonge through functions served

Weaknesses

- Potential capacity and storage problems at more closely-spaced Yonge/Lakeshore signals
- Direct access from Yonge SB to Lakeshore EB infeasible

Conclusions

- May warrant further consideration, however, feasibility of closely-spaced signals on Yonge needs rigorous testing

Alternative 3C:

Add New Ramp from Queens Quay to Gardiner EB
in vicinity of Parliament Street

Strengths

- Relatively low impact on adjacent land uses
- Operationally straightforward
- Good relief valve potential for existing capacity deficiencies, in particular the Yonge loop ramp onto the Gardiner
- Improved accessibility of Waterfront lands to the Gardiner EB

Weaknesses

- Requires modest additional travel distance (for downtown-oriented traffic)
- Could adversely affect Queens Quay EB operation
- Requires relocation of industrial rail "feeds"

Conclusions

- Warrants further consideration as part of an overall Gardiner access system

Alternative 3D:

Introduce Jogged Configuration for Lakeshore EB
(Note: Similar to Alternative 3B)

Strengths

- Simple and low cost
- Yonge through functions served
- Increased spacing between two Lakeshore/Yonge signals (compared to 3B)

Weaknesses

- Non-conventional intersection approach on Lakeshore EB at Yonge (three left turn lanes)
- Potential operational difficulties with two closely-spaced Yonge/Lakeshore signals

- Direct access from Yonge SB to Lakeshore EB infeasible

Conclusions

- May warrant further consideration
- Subject to results of operational analysis of Yonge/Lakeshore signals, Alternative 3B is preferred

2.4 The Jarvis Interchange Area

Alternative 4A:

Modify Jarvis OFF Ramp (from Gardiner EB) and
Introduce Additional Channelization on Lakeshore EB

Strengths

- Relatively low cost
- Provides extended weaving section for key weaving movements - Lakeshore EB to Gardiner EB with Gardiner EB OFF ramp to Lakeshore EB

Weaknesses

- Moderately increased weaving speeds
- Maintenance of additional channelized lanes
- Does not facilitate any additional turning movements, for example, Lakeshore EB to Jarvis NB

Conclusions

- Warrants further detailed design consideration, particularly if the existing weaving demand volumes increase

Alternative 4B:

Construct New Entry Point to Gardiner EB
ON Ramp on South Side of Lakeshore

Strength

- Completely eliminates the Lakeshore/Gardiner weave problem
- Provides for all Lakeshore/Jarvis turning movements including the EB to NB left turn

- Maintains high capacity and flexibility for Lakeshore EB

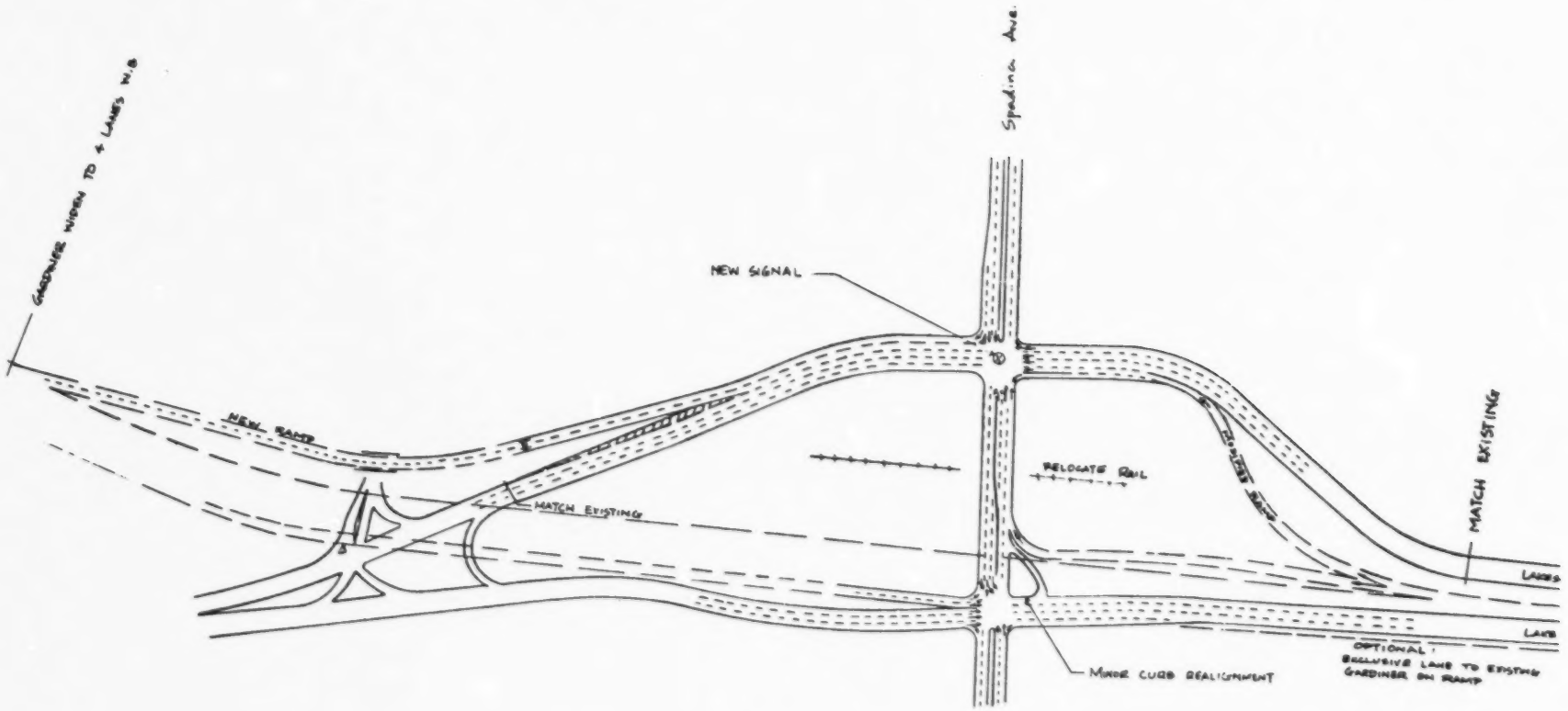
Weaknesses

- Relatively high cost and staging difficulty of ramp reconstruction
- Closure of Richardson Street at Lakeshore EB required
- Visual impact on buildings fronting Lakeshore EB between Jarvis and Sherbourne

Conclusions

- Probably not cost effective unless combination of additional Lakeshore EB/Jarvis access and increased weaving demands warrant consideration

APPENDIX



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Central Bayfront
Access Investigation
Spadina Interchange:
Alternative 1C
Date: Jan. 26/83
Revised: Feb. 2/83

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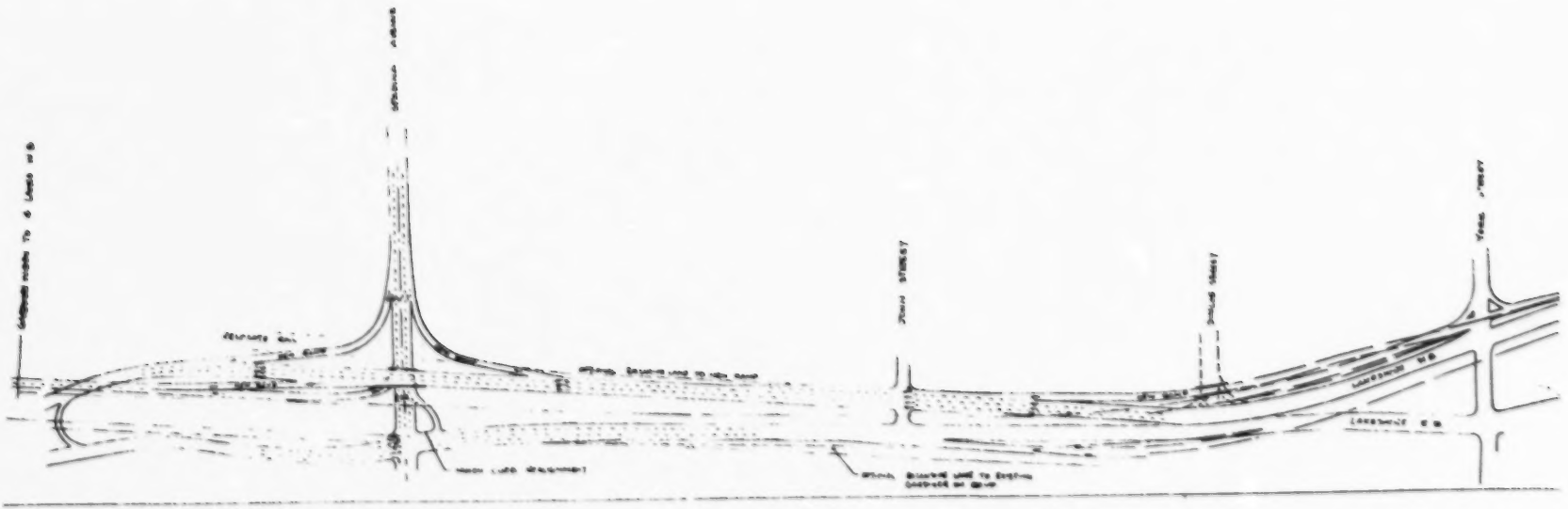

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Central Bayfront
Access Investigation
Spadina Interchange
Alternative 1D
Date Jan 26/83
Project No 2163

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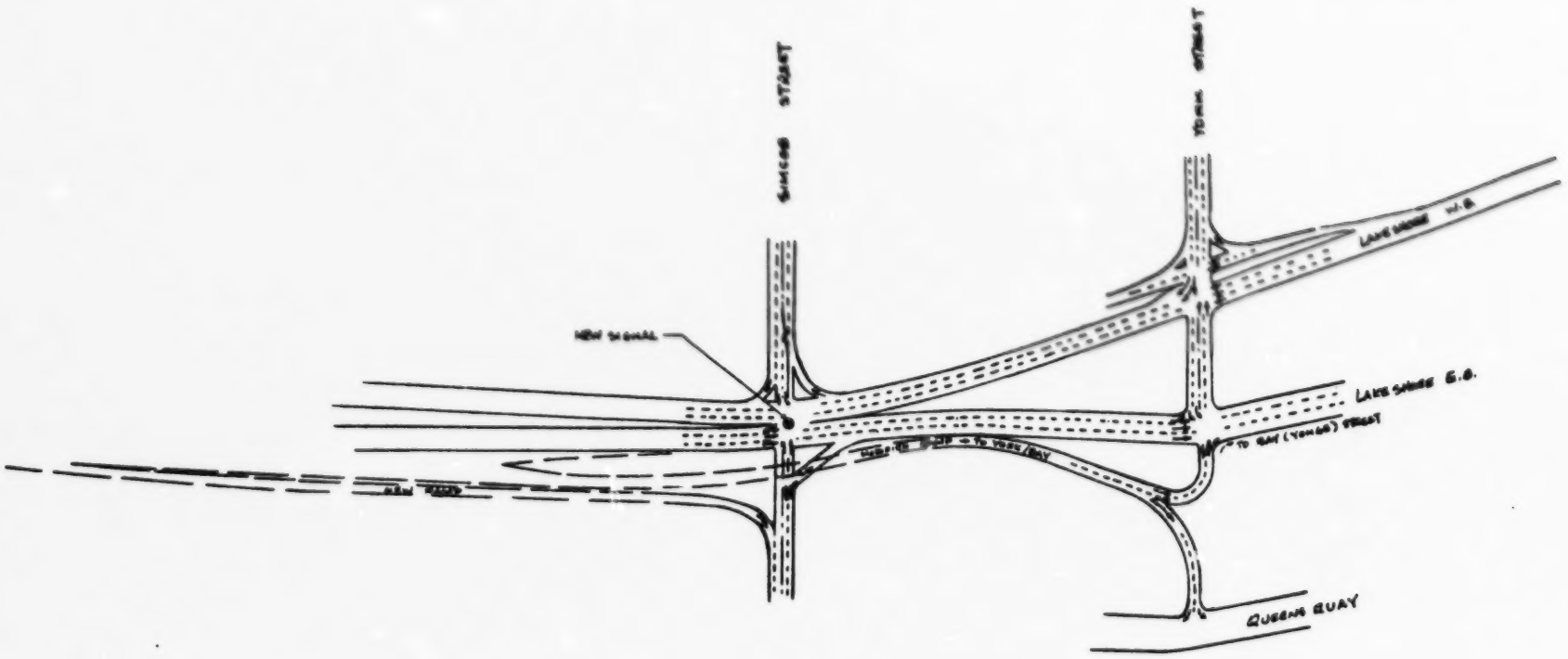

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Central Bayfront
Access Investigation
York Interchange
Alternative 2B
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Revised: Feb 2/83

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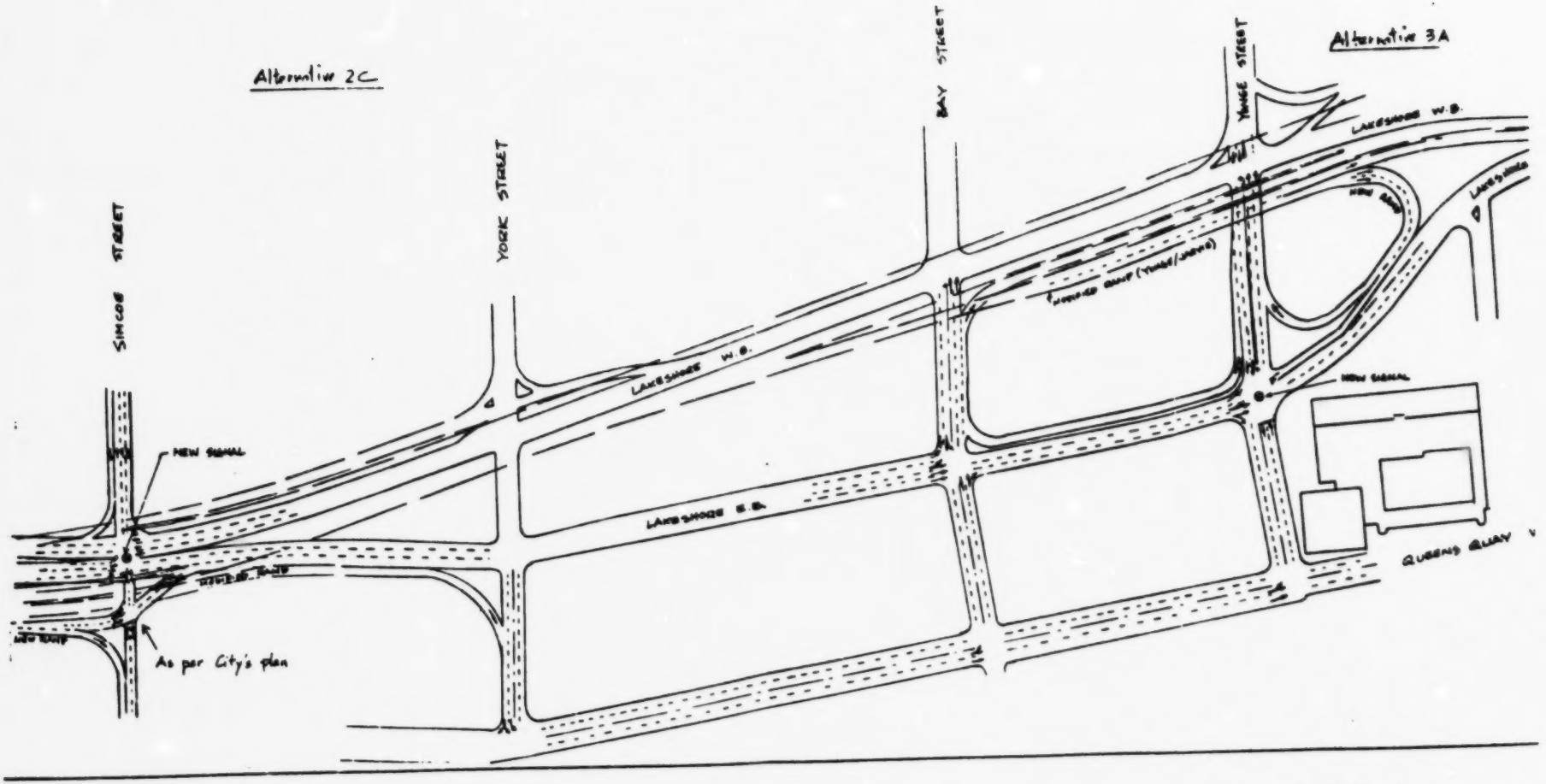

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Central Bayfront

Access Investigation
York Interchange: Alternative 2
Yonge Interchange: Alternative 3

Date: Jan 26/83
Revised: Feb. 2/83

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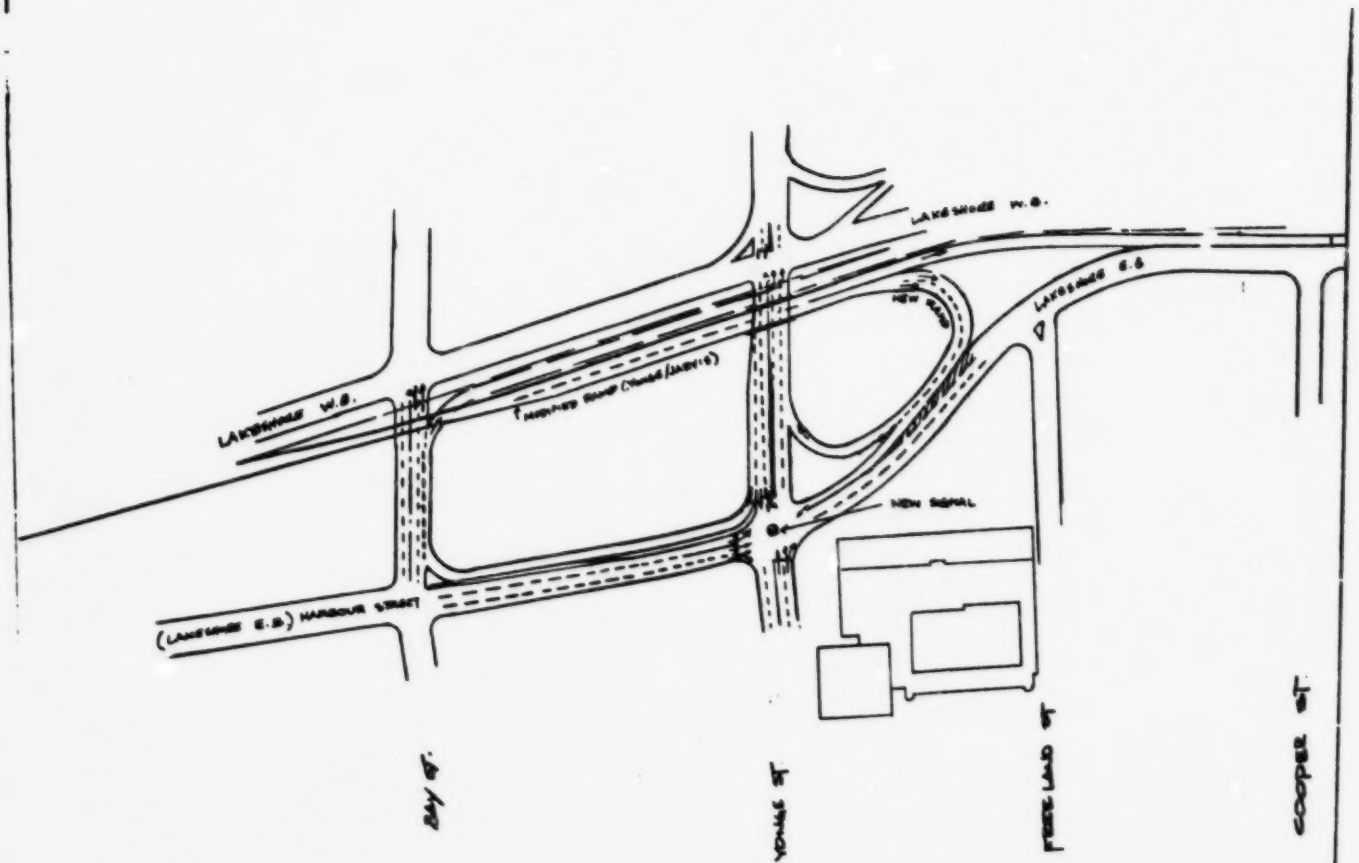

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Central Bayfront
Access Investigation

Yonge Interchange : Alte

Date: Jan. 26/83
Revised: Feb. 2/83

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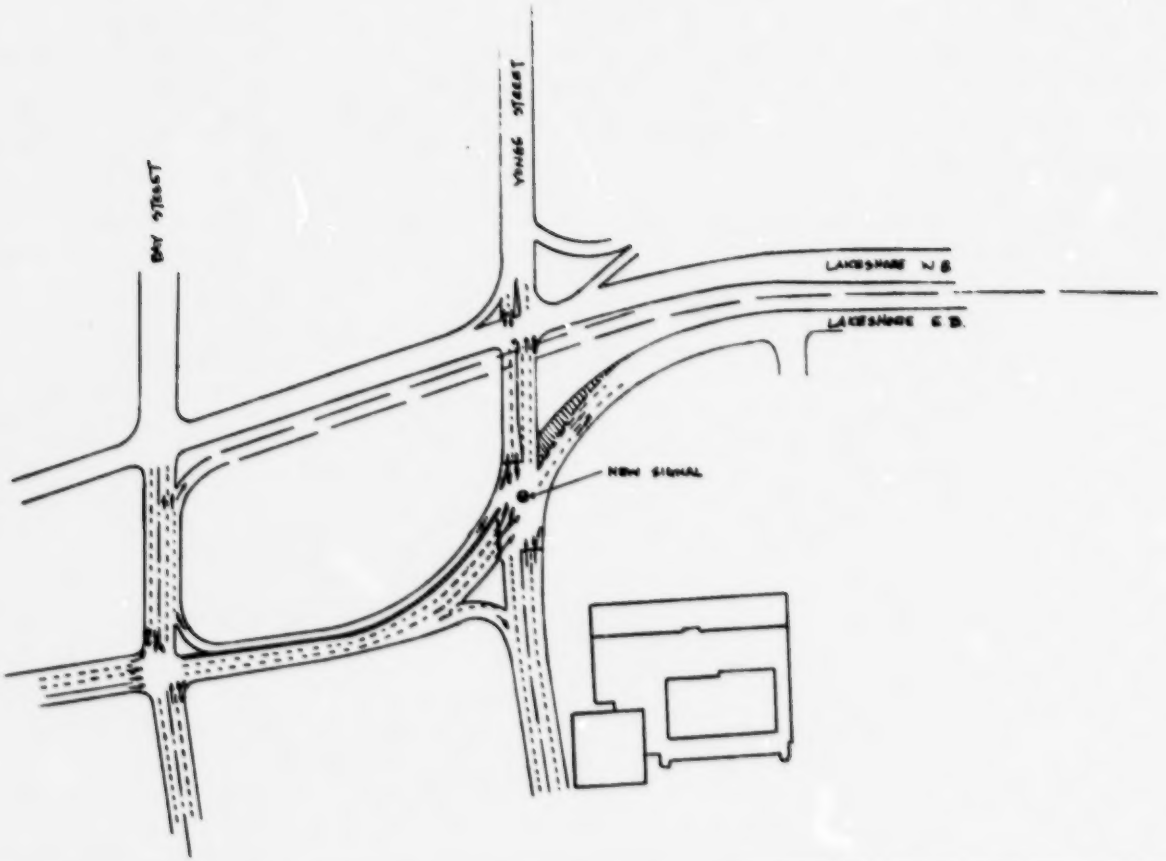

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Central Bayfront

Access Investigation

Yonge Interchange

Alternative 3B

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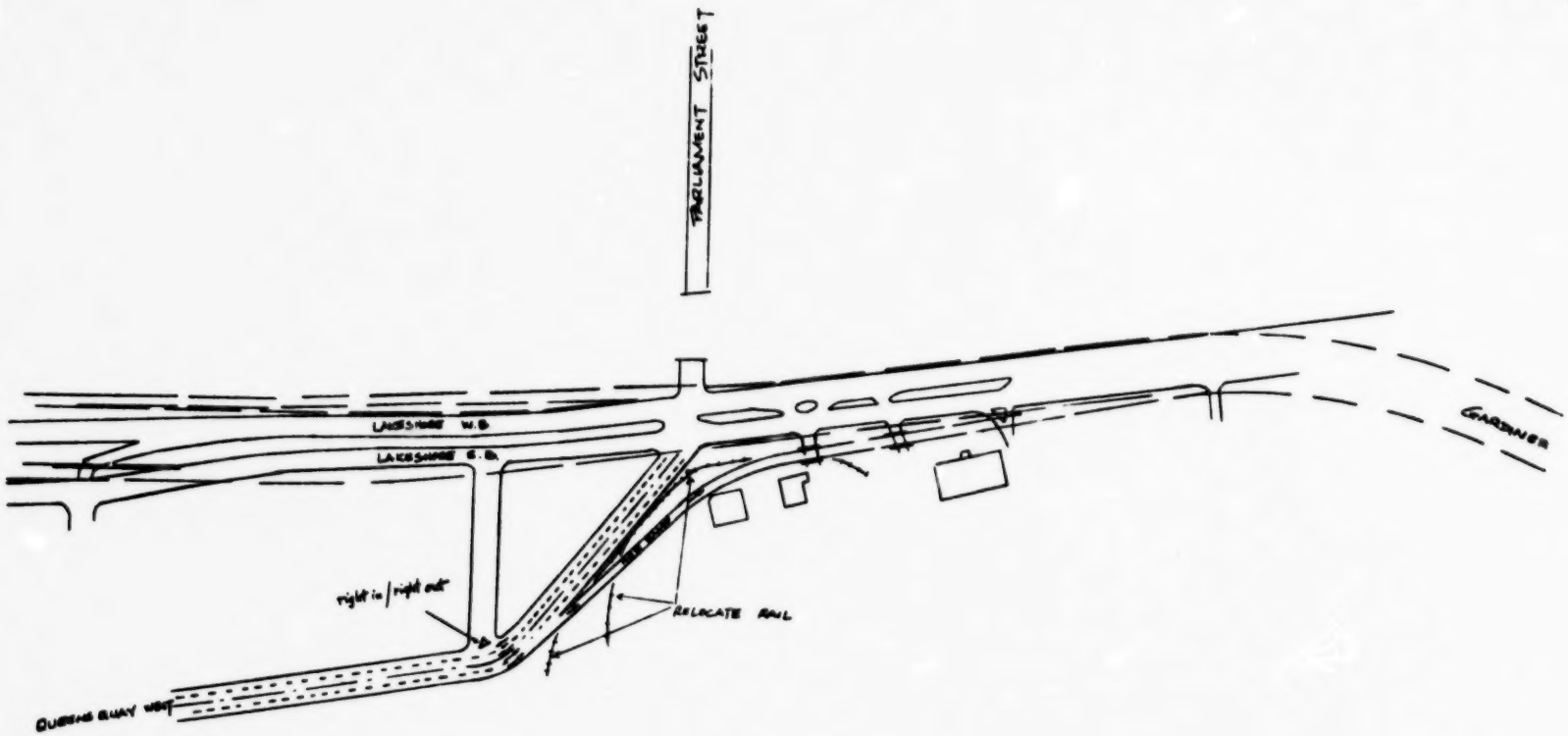

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Access Investigation
Yonge Interchange
Alternative 3C
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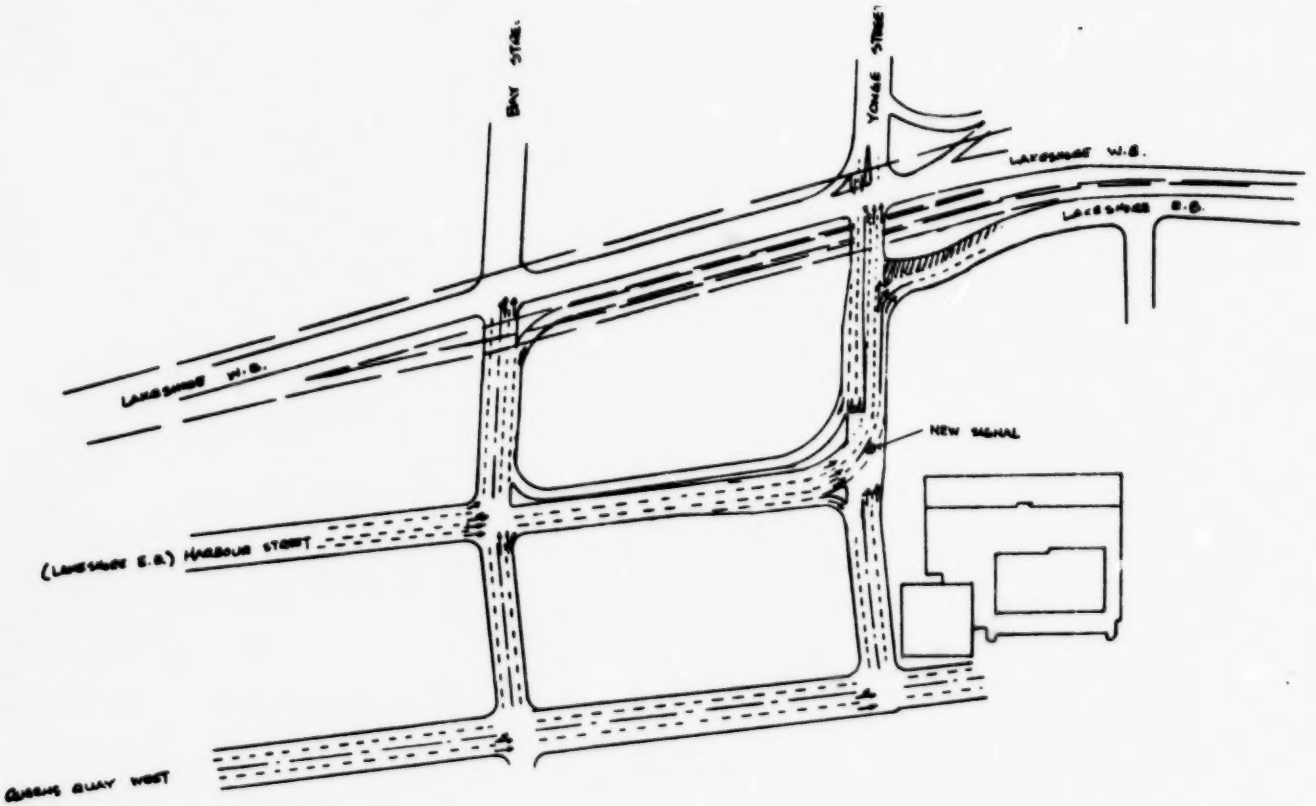
Revised : Feb 2/83



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Scale: approx. 1"=200'

Central Bayfront
Access Investigation

Yonge Interchange:
Alternative 3D

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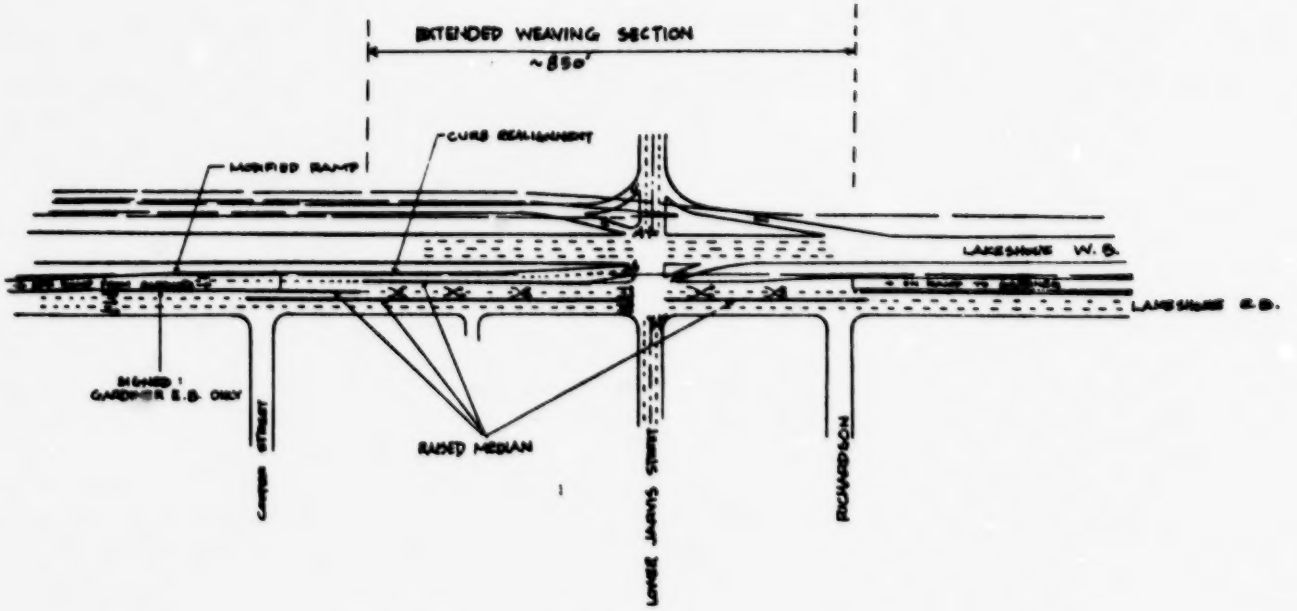
Revised. Feb. 2/83



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Central Bayfront
Access Investigation

Jarvis Interchange
Alternative 4 A

Date : Jan. 26/83
Revised : Feb. 2/83

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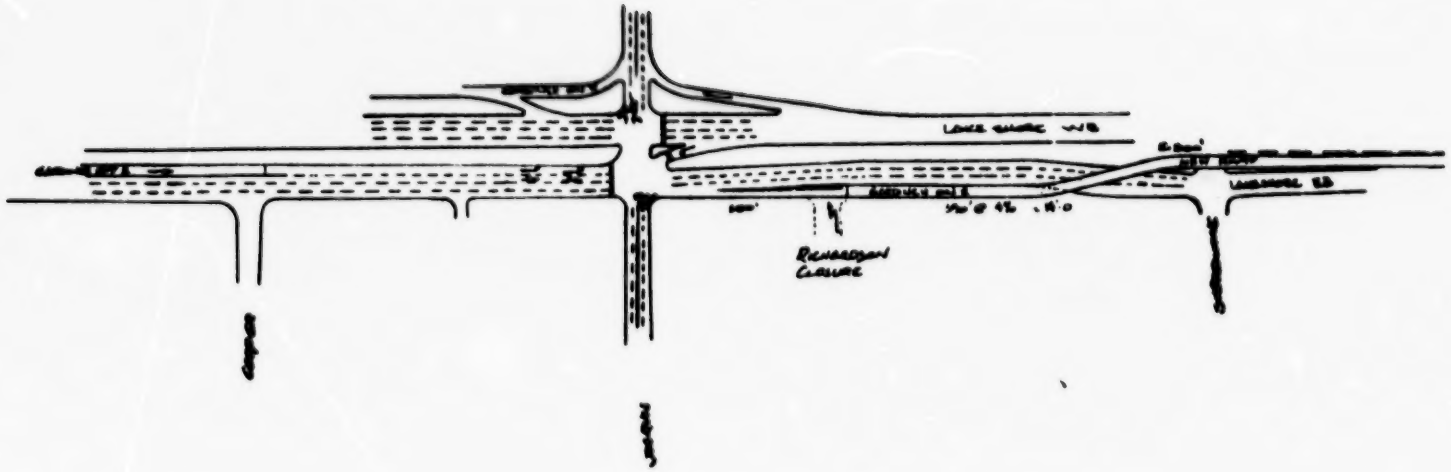

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Central Bayfront
Access Investigation
Jarvis Interchange
Alternative 4 B
Date: Jan 26/83

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